

Clean Copy of Pending Claims

1. (currently amended) An implantable microstimulator, comprising:
 - an hermetically-sealed housing;
 - an electronic subassembly housed within the hermetically-sealed housing;
 - a power source contained within the hermetically-sealed housing and operatively connected to the electronic subassembly for providing operating power to the electronic subassembly;
 - a first electrode and a second electrode for stimulating tissue, each electrode external to the hermetically-sealed housing and electrically coupled to the electronic subassembly;
 - an antenna coil within the hermetically-sealed housing and electrically coupled to the electronic subassembly; and
 - telemetry circuitry coupled to the antenna coil for allowing data-containing signals to be received from at least one external device, said telemetry circuitry comprising
 - a first telemetry receiver for receiving data in accordance with a first telemetry scheme, and
 - a second telemetry receiver for receiving data in accordance with a second telemetry scheme.
2. (original) The implantable microstimulator of Claim 1 wherein the electronic subassembly includes a ferrite core around which the antenna coil is wrapped.
3. (original) The implantable microstimulator of Claim 2 wherein the ferrite core includes a first half and a second half.

4. (original) The implantable microstimulator of Claim 2 wherein the first telemetry scheme comprises a binary frequency shift key (BFSK) scheme wherein a binary "1" is represented by a transmitted signal of a first frequency F1, and wherein a binary "0" is represented by a transmitted signal of a second frequency F2.
5. (original) The implantable microstimulator of Claim 4 wherein the first telemetry receiver includes a capacitor for tuning the antenna coil wrapped around the ferrite core to a frequency that is close to both the first frequency F1 and the second frequency F2, whereby both the first frequency F1 and the second frequency F2 may be received through the antenna coil with minimal degradation.
6. (original) The implantable microstimulator of Claim 5 wherein the first telemetry receiver includes a mixer circuit and a local oscillator circuit, and wherein the local oscillator circuit generates a local oscillator signal having a frequency F3, and wherein the received BFSK signal is mixed with the local oscillator signal at the mixer circuit to produce a difference signal, and wherein the local oscillator signal F3 is approximately mid way between the frequency F1 and F2.
7. (original) The implantable microstimulator of Claim 6 wherein the first frequency F1 is about 131 KHz, and the second frequency F2 is about 123 KHz, and the frequency F3 of the local oscillator signal is about 127 KHz.
8. (currently amended) The implantable microstimulator of Claim 4 wherein the second telemetry scheme comprises an ON-OFF-KEY (OOK) Pulse Width Modulation (PWM) scheme.
9. (currently amended) The implantable microstimulator of Claim 8 wherein the telemetry circuitry further includes transmission circuitry for transmitting a signal to the external device in accordance with the BFSK telemetry scheme.
- 10-16. (canceled)

17. (currently amended) An implantable microstimulator, comprising
an hermetically-sealed housing;
an electronic subassembly housed within the hermetically-sealed housing;
a power source contained within the hermetically-sealed housing and
operatively connected to the electronic subassembly for providing
operating power to the electronic subassembly;
first and second electrodes external to the hermetically-sealed housing and
electrically coupled to the electronic subassembly;
an antenna within the hermetically-sealed housing; and
telemetry circuitry, coupled to the antenna, for allowing data-containing
signals to be received from at least one external unit through a first radio
frequency (RF) telemetry link, and for allowing data-containing signals to
be received from at least one external unit through a second inductive
telemetry link
18. (currently amended) The implantable microstimulator of Claim 17 wherein the RF
telemetry link comprises a binary frequency shift key (BFSK) telemetry link.
19. (canceled)
20. (currently amended) The implantable microstimulator of Claim 18 wherein the
electromagnetic inductive telemetry link comprises an ON-OFF-KEY Pulse Width
Modulation (OOK-PWM) telemetry link.

21. (new) An implantable microstimulator, comprising:
an hermetically-sealed housing;
a first electrode and a second electrode for stimulating tissue, each electrode
external to the hermetically-sealed housing;
an antenna within the hermetically-sealed housing; and
telemetry circuitry coupled to the antenna for receiving data-containing
signals from at least one external device, said telemetry circuitry
comprising
a first telemetry receiver for receiving data in accordance with a first
telemetry scheme, and
a second telemetry receiver for receiving data in accordance with a
second telemetry scheme.
22. (new) The implantable microstimulator of Claim 21 wherein the antenna is
wrapped around a ferrite core.
23. (new) The implantable microstimulator of Claim 22 wherein the ferrite core
includes a first half and a second half.
24. (new) The implantable microstimulator of Claim 22 wherein the first telemetry
scheme comprises a binary frequency shift key (BFSK) scheme.
25. (new) The implantable microstimulator of Claim 21 wherein the first telemetry
receiver includes a capacitor for tuning the antenna to a frequency that is close to both a
first frequency F1 and a second frequency F2, whereby both the first frequency F1 and
the second frequency F2 may be received through the antenna coil with minimal
degradation.
26. (new) The implantable microstimulator of Claim 25 wherein the first telemetry
receiver includes a mixer circuit and a local oscillator circuit, and wherein the local

oscillator circuit generates a local oscillator signal having a frequency F_3 , and wherein the received BFSK signal is mixed with the local oscillator signal at the mixer circuit to produce a difference signal, and wherein the local oscillator signal F_3 is approximately mid way between the frequency F_1 and F_2 .

27. (new) The implantable microstimulator of Claim 24 wherein the second telemetry scheme comprises an ON-OFF-KEY (OOK) Pulse Width Modulation (PWM) scheme.

28. (new) The implantable microstimulator of Claim 24 wherein the telemetry circuitry further includes transmission circuitry for transmitting a signal to the external device in accordance with the BFSK telemetry scheme.